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Before the  
Federal Communications Commission  
Washington, DC 20554

In the Matter of )  
 )  
Notice of Proposed Rule )  
Making for the )  
Restructuring of Amateur )  
Radio Licensing )  
 )  
 )

WT Docket No. 98-143

To: The Commission

**Reply Comments of Nickolaus E. Leggett, N3NL  
Amateur Extra Class Radio Operator**

The following reply comments are submitted by Nickolaus E. Leggett who is a licensed amateur radio operator of over 30 years experience. These comments are in reply to the comments of the American Radio Relay League, Inc. (ARRL). My call sign is N3NL and I hold the Amateur Extra Class radio license.

The basic concept of the amateur radio license restructuring proposed by the ARRL and others is a constructive idea. However, their proposal needs some readjustment in order to adequately serve the emergencies that will probably occur in the early decades of the next century.

The primary problem with the ARRL comments is that they ignore intense emergencies. An intense emergency is a situation where all or most of the communications infrastructure has been damaged or destroyed over a large area. The most likely intense emergency is a high energy earthquake on the west coast of the United States. Other intense emergencies such as terrorism events or high-energy solar storms are also possible.

**1.1 Improvising Equipment and Using the Morse Code**

In an intense emergency, there is the need to improvise communications from whatever equipment or pieces of equipment is available. In many cases crushed and burned equipment will have to be dismantled and parts salvaged to build working transmitters and receivers. A

well-trained amateur radio service can improvise such radio equipment in an intense emergency.

It is much easier to build a Morse Code station from salvaged parts than it is to build a voice or computer data station. In a severe situation hams can build a keyed radio noise generator (a spark gap transmitter) and a passive diode receiver (crystal set) to get the messages out of the disaster area. If the operators are skilled in Morse Code they can effectively use such a primitive station for emergency communication.

The ARRL proposal should be modified to establish Morse Code examinations of 5 words per minute (WPM) for General Class, 10 WPM Advanced Class, and 15 WPM for Extra Class. In the case of the Advanced Class and Extra Class, the Morse Code exams could be waived if the applicant passes an additional set of detailed questions on digital components and circuits. This elective alternative accommodates the different skills of the applicants and supports the goal of amateur radio operators who can step forward in an emergency and improvise communications systems.

## **1.2 The Technical Exams**

The technical exams should be structured so that the applicants are tested on component and circuit level knowledge. This should include both analog and digital circuits. When an emergency strikes, the operators will then have the capability to improvise any type of circuit. Unfortunately, the ARRL and others have overvalued the importance of the digital technology and have tended to dismiss the analog technology as obsolete. In reality, much of the digital computerized communication is fragile and susceptible to overload and failure in an intense emergency. The low-tech analog technology can be an excellent option when the digital routers and switches have failed.

The technical exams for the Extra Class license should require the applicant to draw circuit diagrams as well as answer the usual multiple choice questions. The Extra Class examination should be a very difficult examination which prepares the applicant to step into even the worst emergency and improvise effective communications. This would make the Extra Class operators equivalent to ship board radio officers. Unfortunately, the current Extra Class

examinations do not require this level of preparation.

### **1.3 Technician Class Operators on High Frequency Morse Code**

The ARRL has proposed that Technician Class operators be allowed to use Morse Code on the General Class high frequency (short wave) bands designated for Morse Code and digital operation. The idea of this is to encourage the Technician Class hams to learn Morse Code and qualify for General Class. This is a good idea, but it has a legal problem.

The international regulations require some sort of Morse Code test before the operator is allowed to operate on the high frequency amateur radio bands. The Technician Class operators have not taken any Morse Code examination at all. The ARRL attempts to overcome this by stating that you cannot use Morse Code without knowing the Morse Code. This is their concept of self testing.

Unfortunately, their concept of self testing collides with technical reality. It is quite possible to send and receive Morse Code over the air using a digital machine or software on a personal computer. The operator can communicate this way without knowing the Morse Code at all. These code translators are available commercially and have been advertised in the ARRL magazine, **QST**, for many years.

If the Commission has a problem with the legality of this ARRL proposal, it should keep the current Technician Plus class of license which includes a code test that allows Technicians to work with Morse Code on the high frequency bands. The Technician Plus operators could be authorized to operate on the General Class Morse Code and digital segments. If the Commission does not have a legal problem with the ARRL proposal, then it should approve the ARRL proposal for Technician Class operation on the high frequency bands.

#### **1.4 Conclusion**

The ARRL proposal should be modified as specified in these comments to encourage amateur radio operators to be prepared for intense emergencies. The amateur radio operator should be prepared to step into a terrible emergency situation and improvise effective communications. This should include the building of radio equipment from salvaged and homemade components.

Respectfully submitted,

*Nickolaus E. Leggett*

Nickolaus E. Leggett

Dated: December 28, 1998

1432 Northgate Square, Apt. 2A  
Reston, VA 20190-3748  
(703) 709-0752

A service copy of these comments has been sent by first class mail to the ARRL General Counsel:

Christopher D. Imlay  
Booth Freret Imlay & Tepper, P.C.  
5101 Wisconsin Avenue, N.W. Suite 307  
Washington, DC 20016-4120